

treetops colour harmonies

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CREATING SILK 'PAPER'

(also known as SILK FUSION)

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Silk, the most lustrous of all natural fibers, has always been surrounded by an aura of glamour. Silk 'paper' (I use quotes because this is not a true sheet of laid paper) captures this intense luster and is easily incorporated into the artist's work. By simply laying down unspun silk fiber and "gluing" it together with various adhesive mediums you can create a sheet of shimmering silk 'paper'. The original concept has been passed down by a felter/papermaker from Holland, Inge Evers, who incorporated silk paper into her felt. Realizing that silk paper could have a much broader application, I have spent several years researching various adhesive mediums that would allow for creative manipulation of the silk for machine embroidery, three-dimensional sculpture, jewellery, wearable art, quilting, book coverings, collage and mixed media. The list is limited only by the artist's imagination.

Silk Fibre Characteristics

Silk is spun by a caterpillar as a semi-liquid, continuous filament that hardens on contact with air. The smooth surface of the silk fiber reflects light, and this reflected light is seen as luster. Silk is processed and sold in many forms.

There are two major types of silk fiber depending on which species of caterpillar spins the silk. The Bombyx Mori extrudes a pure white silk that is very fine and highly lustrous and is sometimes commonly known as Mulberry silk. The Chinese Tussah silk worm spins a lovely honey coloured fiber which is slightly coarser and less lustrous, but also less expensive.

Recommended Fibre Types

To create a paper with lovely luster and strength you should purchase silk in a “top” preparation. A “top” has been both carded and combed so that all the fibers are aligned perfectly parallel and are of a specified length. Make sure when purchasing the tops that the staple length is at least 3-4 inches (7.5-10 cm) - the longer the better.

Other fibre and materials that may be of interest:
- Silk noil:. Very short-stapled fibre with cocoon debris carded throughout. Great texture, but no luster. Comes either in Tussah or Bombyx.

-Silk throwster's waste: Very long lustrous strands of white silk filament, very fine and squiggly. Great texture and fibre strength.
-Silk Laps: Wonderfully textured, long fibres roughly carded into batts. Like a giant sheet of lacy silk fibre. Comes in Tussah or Bombyx.
-Silk Hankies (also know as Mawata squares): Individual cocoons are spread over a handkerchief shaped frame forming a cobweb like square of fibre. May be used individually as a gossamer thin layer or several together to make as dense a surface as needed. Very versatile!
-Fibre other than silk that may produce interesting textures and surfaces: hemp tops, ramie tops, flax (linen) tops or line, mohair tops.
-Fine open weave fabrics of various textures and fibre types (such as silk organza) may be of interest to use as a middle layer to add internal strength to your project or to act as a background onto which you lay the silk.
-Fine knitted fabrics can be utilized as above, but lend an interesting flexibility to your project.

Quantity Of Silk Needed

Approximately 50 gms of silk tops will make a sheet of medium thickness about 1 meter square.

Preparation

It is easiest to work on fairly heavy sheet of plastic. You may eventually want to move the silk outside to dry in the shade so cut the plastic to a manageable size. First lay down a piece of tulle (netting) twice as big as your project (so as to sandwich the sheet of silk paper). If your silk tops were hand-dyed it may need to be given a few tugs along its length to loosen up the fiber (silk becomes stiff after being wet).

Laying Down Silk Tops

The following instructions are for forming a classic sheet of silk 'paper' from silk tops. Begin by laying out the silk fiber on top of the tulle. Pull off a manageable length from the silk top (say 6-12 inches) and strip it lengthwise as many times as needed to be easily manageable. Then use the palm of your hand to hold down the end of the silk top on the tulle and pull out a length of fiber approximately 1/2" to 1-1/2" wide by 3" to 4" long (see Figure 1). The length of fiber laid down at any one time is directly related to length of the individual fibers in the top. Continue laying down fiber in this manner - being sure that the fibers are slightly overlapping each time. I usually begin in the upper right hand corner of the sheet and work downwards towards me then on the next row move back up away from me. On the subsequent rows it is imperative to place your palm on top of the previous row so that each new row overlaps approximately 1 1/2" to 2 1/2" on top of the previous one. You should not be able to see the tulle underneath the silk. Continue laying down the silk until it reaches your desired dimension. The paper's thickness is dependent upon the amount of silk you place in any one spot. Sampling is the best way to determine the correct thickness for a particular use.

There are several things to keep in mind that will improve your results. First, the strength of this sheet of paper is along the length of the fiber (the fibers are more likely to pull away from one another crosswise than lengthwise). If you need your paper to be strong in all directions (such as in wearables) lay down three separate thinner layers. The middle layer is placed at right angles to the top and bottom layers. Second, the highest possible luster is obtained by keeping the fibers as orderly and parallel to each other as possible. Finally,

when laying out the silk, it is essential that your work area must be completely dry. Static electricity can make the silk difficult to lay down evenly and orderly. Patients will be needed or simply apply an anti-static spray (sold to keep your dress from clinging to your stockings.). Be sure and let it dry thoroughly before working with the silk.



Figure 1. Laying down the silk tops.



Figure 2. Wetting out the silk.

Wetting Out The Silk

After your silk is laid down cover the top with the rest of the tulle. The next step is to wet out the silk so that it will easily accept the adhesive agents. Silk fiber has a great tendency to repel water, so to help break its surface tension, paint the silk with a solution of soapy water (see Figure 2). A paint brush about 2-3 inches wide works well. Any mild soap will do (approximately 1 tsp per 4 cups water) or use Synthrapol (1 tsp per 4 cups water), which is a wetting agent available from most dye houses. Turn silk over and repeat on the other side. Wipe up any excess water gently with a sponge. Don't worry about a bit of lather.

Applying The Adhesive

There are several adhesive agents that can be used to "glue" the fibers together, depending upon your project. There are advantages and disadvantages inherent to each adhesive, so some experimenting on your part will be necessary.

To apply any of the following adhesives simply prepare as directed below and paint very evenly and thoroughly onto BOTH sides of the silk paper (once the silk has been thoroughly wetted). After the adhesive has been applied to both sides it is best to move the paper off the plastic onto some type of screen (fly wire) to dry (otherwise your paper may become excessively shiny where too much adhesive settles out onto the plastic). When dry simply peel the silk paper away from the tulle. Be sure the paper is thoroughly dry or it will be difficult to peel away from the tulle. You can then iron the paper (silk setting) under a pressing cloth to further flatten it. Drying times vary according to the paper's thickness and the adhesive used, but generally allow over night. Never place silk in direct sunlight as this will cause degradation of the fiber.

Sculpting With Silk Paper

After the adhesive has been applied to both sides of the silk paper, remove the tulle (see Figure 3) and leave on the plastic. Then with your fingers simply start manipulating the silk into any desirable shape (see Figure 4) or drape over a mold, leave to dry. If your mold is

precious, cover with plastic wrap or simply create your own mold by scrunching up aluminium foil. Of course, proper cast molds work well - mediums may stick to the mold if it has not been properly sealed or covered with plastic wrap. If you find the medium dripping off the molded piece remember to dab up the excess as it is drying so that not too much medium accumulates (these drip areas will become very stiff and once dry it can not be removed). It may be necessary to apply several thin coats to areas where the medium has drained off before it was able to dry.



Figure 3. Removing the tulle.



Figure 4. Sculpting the silk paper.

Design Variations

The method you use for laying out the silk will vary depending on the type of fibre preparation you use and the end effect you would like to create. You can construct Interesting surfaces simply by throwing down tuffs of silk at random or spreading out the fibres very fine like a cobweb. Try incorporating other materials like paperbark, feathers or threads in with the silk as you lay it down. Sandwich very fine woven or knit fabrics in-between the top and bottom layers to create a fabric with greater overall strength and/or texture - great for wearables.
You can also simply lay down the silk on top a piece of finely woven fabric (like silk organza) to create an interesting design. If you are into 3-dimensional design incorporate fine wire or cords in-between the layers of silk - then fold or bend into shapes. Silk paper is also fantastic to use as a drawing surface, using inks, oil pastels or acrylic paints to name a few. Silk paper can also be used for phototransfers, embossing or burn out techniques. Machine embroideries and quilters can create their own silk 'paper' fabrics to use for embellishment.

Types Of Adhesives

There are many art supply companies that produce various types of adhesive mediums. It is important to understand that each company has its own unique formula that may or may not work successfully with the silk. I have experimented with many different brands with varying degrees of success. Early in 1993, I began working with the chemist at Chroma Acrylics, a company that manufactures artist supplies, and together we have determined that the following two adhesive mediums will bond very successfully with the silk without harming it.

ACRYLIC GLOSS MEDIUM/VARNISH (Atelier brand, by Chroma Acrylics)

This adhesive is water-repellent, has enough stiffness for sculpting, jewellery, book coverings and mixed media but still leaves the silk with a crisp but pliable handle and is easily machine stitched. It is the more natural feeling of the two mediums. To apply, see the above information and follow manufacturers directions. For sculptural effects use the medium without any (or very little) water added. For a paper with a medium stiffness try a 1:1 ratio of water and adhesive (i.e. 50 mls of water and 50 mls of medium). For a very nice soft sheet of paper you can use a solution of 1:9 (10 mls solution to 90 mls of water). Experiment to be sure your paper has the durability and strength that your project requires. You can always add more medium, but you can't remove it once its dry. If too little of the adhesive is used, the surface of the paper may appear hairy. Simply brush more adhesive on. Several thinner coats achieve a much better result than one heavy application. To add a new layer of silk paper to an existing piece, simply make up the new piece to be added and then glue it onto the existing paper using the acrylic gloss medium/varnish. The more water in the solution the more successful you will be at adding pieces. If possible lay the new silk fibres directly onto the existing sheet. It is important to note that two fully dry pieces of silk paper made with the acrylic adhesive will not bond to each other - the medium is not a true "gluing" agent. If you find you are getting separation between your layers after they are dry, next time try leaving the silk to wet out with the water/soap solution over night.

TEXTILE MEDIUM (Jo Sonja's brand, manufactured by Chroma Acrylics)

This adhesive is waterproof, hand washable and dry cleanable (reduced cycle, reduced moisture, 40^{o}C). It can be used, within limits, for wearable art. The silk paper created with this medium is quite flexible and lustrous but has a slightly coated feel. Apply as above, and follow manufacturer's directions to heat set, ensuring proper bonding. Too little adhesive will allow the layers to bubble and possibly separate, which may or may not be a problem depending on your use. Re-enforcement (decorative) stitching could be beneficial. Some uses for this adhesive include belts, appliqué, and other accessory items such as purses and hats. It is more flexible than the acrylic medium and therefore better to use in purses where you need the flaps to bend easily. It is very important in wearables that YOU test your products to ensure that they have the durability and washability that you need.

WALLPAPER PASTE CONTAINING METHYL CELLULOSE

Wallpaper paste with methyl cellulose traditionally is used for adhering rice and other cellulose wallpapers. There are many advantages to using wallpaper paste - it leaves the silk with a wonderfully natural handle, is a more natural product, is very forgiving (can be removed with water) and great for using in felting. The disadvantages are that the pieces are not thoroughly permanent (i.e. the paste continually gains and releases atmospheric moisture) and are not at all waterproof (unless shellac or other varnishes are added afterwards). The paste should be made up per directions on the package (Please note their are hundreds of varieties on the market, you will just have to test a few). Try to buy one WITHOUT the anti-fungal agents added. The paste should be relatively clear in appearance once thoroughly mixed up. Mix to a thick paste consistency. It can be thinned accordingly. For stiffer papers several thinner coats are always more desirable than one thick coating.

The wallpaper paste is fabulous for creating silk "pre-felts". You can create the silk paper and then cut out elaborate designs (held together temporarily with the wallpaper paste), which will then be attached onto the wool as the paste washes out in the felting process.

Chemically, methyl cellulose is not stable because it is constantly absorbing atmospheric moisture and expanding microscopically. I have found the pieces that began quite stiff have loosened up over time and eventually the adhesive appears to almost disappear. For this reason it is recommended for use only when the piece will be under glass, heavily re-enforced with stitching or used in felting (in a similar manner to using pre-felt). Many people have had greater success with its permanence than me, so once again experiment.

Conclusion

Silk paper is an exciting new and unique medium for designing with silk. Because it has not been spun or woven first the paper's luster is intensely alluring and it's surface texture is easily manipulated a variety of ways (scrunching, molding, stitching...). You can virtually paint with the silk paper, create sculptural pieces or design wearable art pieces- its diverse applications are virtually unexplored. Experiment with the various adhesives to obtain the feel and effect you want and most of all have fun!

Sources for dyed Silk Tops and adhesives

TREETOPS COLOUR HARMONIES
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